

PSYCHE.

ON THE RHOPALOMERIDÆ.

BY S. W. WILLISTON, LAWRENCE, KANSAS.

Seventy years ago Wiedemann described a genus of flies of peculiar structure under the name *Ropalomera*, which he placed in the vicinity of *Platystoma*. Latreille later included the genus among the Ephydridæ, to which indeed the flies have a peculiar resemblance, but his example has not been followed by more recent writers. Macquart, Walker, and Rondani all agreed with Wiedemann in his views of their relationship. Loew at one time* located the genus with the Platystominae. Later† he wavered in his opinion whether it should be placed with the Sapromyzidæ or the Sciomyzidæ. Schiner‡ contended that *Rhopalomera*, and a new genus *Rhinotoria*, which he erected, should constitute a separate family. In this contention I think Schiner was right, and my opinion is based upon a critical study of several species of the group as well as of several hundred of those of the allied families.

After a careful examination of the literature, I find descriptions of the following species: *Rhopalomera clavipes*, *femorata*, *pleuropunctata*, and *strictica* Wiedemann. *maculipennis*

and *flaviceps* Macquart, *punctipennis*, *similis* and *vittifrons* Rondani, *tibialis*, *varipes*, and ? *rufipes* Walker. Of these, I believe that only the first six represent valid species; the remainder are either identical with Wiedemann's and Macquart's species, or the descriptions are unrecognizable. *R. ? rufipes* Walker apparently does not belong in the genus, although it may possibly be a *Rhinotoria*.

With these species are included two species of *Rhinotoria* Schiner, neither of which is known to me, and possibly one or more known species of *Coelometopia* Macquart.

Of the genus *Rhopalomera*, in Wiedemann's sense, I have five species in my collection, which may be defined as follows:—

Eyes oval or subreniform in shape, bare, the frontal margins concave, and their greatest proximity just below the root of the antennae. Front excavated, flattened, broad; ocelli present; bristles short, two divaricate ones at the angles of the eyes above, the frontal and ocellar bristles absent or present. Antennae short; third joint oval, with a bare or plumose arista. Face broad, carinate or with a strong median tubercle; cheeks broad. Clypeus projecting; no vibrissae. Proboscis short, with thickened labella; palpi short, broadly spatulate. Occiput nearly plane. Thorax elongate; mesonotum nearly bare,

* Neue Beitr., vii, 2.

† Monographs, iii, 14.

‡ Reise der Novara, Dipt. 233.

the bristles short and confined to the sides and posterior margin. Scutellum with bristles. Abdomen shorter than the wings, flattened; ovipositor telescopic, projecting; hypopygium largely concealed. Legs stout; all the femora thickened. Auxiliary vein of the wings well-developed, elongate, reaching nearly to the middle; basal cells large; last section of the fourth vein oblique, the first posterior cell nearly closed before the tip of the wing. All the tibiae with a preapical bristle, the middle tibiae only, with spurs.

Among the five species from which these characters are derived, there is a considerable variation in other structural characters, of sufficient importance, I believe, to render the dismemberment of the genus *Rhopalomera* of Weidemann advisable, as follows:—

RHOPALOMERA Wiedemann, *Analecta Entom.* 1824.

A pair of posterior ocellar bristles present; no frontal bristles; face tuberculate; anten-

nae not inserted under a frontal projection; arista bare or plumose; scutellum pyramidal, directed obliquely upwards. Wings spotted (unspotted in *R. ciliata*).

RHOPALOMYIA, gen. nov.

Posterior ocellar bristles present; two short frontal bristles on each side; antennae inserted under a projection of the front; arista plumose; face carinate; scutellum oval, not prominent; hind tibiae dilated and with tubercles.

APOPHORHYNCHUS, gen. nov.

No ocellar or frontal bristles; antennae not inserted under an angle of the front; face tuberculate; arista plumose; scutellum oval; hind tibiae slender.

In the following table I have endeavored to include all the valid or recognizable species now known, belonging to these three genera, though it must be remembered that some of them are unknown to me.

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| 1. Wings brownish black | <i>Rhopalomera femorata</i> . |
| Wings with distinct markings | 2. |
| Wings without distinct markings | 4. |
| 2. Wings with numerous small spots | <i>Rhopalomera maculipennis</i> . |
| Wings with fewer, larger spots | 3. |
| 3. Wings clouded with brown along the veins | <i>Rhopalomera flaviceps</i> . |
| Wings brown and hyaline, spotted, with dark brown clouds on the cross-veins | <i>Rhopalomera clavipes, tibialis</i> . |
| Wings hyaline and yellowish, with brown clouds | <i>Rhopalomera stictica</i> . |
| 4. Antennae and palpi yellow; hind tibiae broad | <i>varipes</i> . |
| Not such species | 5. |
| 5. Scutellum pyramidal; hind tibiae densely ciliate; arista bare. | |
| Scutellum oval | <i>Rhopalomera ciliata</i> , n. sp. |
| | 6. |
| 6. Hind tibiae dilated | <i>Rhopalomyia pleuropunctata</i> . |
| Hind tibiae slender, arcuate | <i>Apophorhynchus flavidus</i> , n. sp. |

Rhopalomera clavipes Fabricius, Syst. Antl. 329 (Dictya); Wiedemann, Analect. Entom. 17, fig. 12; Auss. Zw. Ins. ii, 571, pl. x, f. 9.—South America.

? *Ropalomera tibialis* Walker, Dipt. Saunders. 375, pl. viii, f. 8.

A true *Rhopalomera*, allied to the following species. Little can be made from Walker's description, but Westwood's figure, and such of the description as is not meaningless, seem to indicate that *clavipes* and *tibialis* are identical. Possibly, however, *tibialis* is synonymous* with *stictica*.

Rhopalomera stictica Wiedemann, Auss. Zw. Ins. ii, 573; Schiner, Reise der Novara, Dipt. 322.—Brazil.

The description of this species as given by Schiner applies well to two specimens before me.

Rhopalomera ?femorata Fabricius, Syst. Antl. 326; Wiedemann, Auss. Zw. Ins. ii, 571.—South America.

The position of this species cannot be determined from the description.

Rhopalomera maculipennis Macquart, Dipt. Exot. ii, 3, 203, pl. xxvii, fig. 3.—Brazil.

Ropalomera punctipennis Rondani, Esame, etc., 20; Schiner, Reise der Novara, Dipt. 232.—Brazil.

Ropalomera similis Rondani, l. c.—Brazil.

Front reddish yellow, brownish at the middle and blackish about the ocelli; a slender silvery line on each orbit. First two joints of the antennae reddish yellow, the third black, except at the immediate base; second joint with a small bristle above. Face opaque yellow; cheeks a little more reddish, with light yellow hair. Palpi yellow. Mesonotum ochraceous yellow, with similarly

colored pollen, beneath which there are seen three brown or blackish stripes. Pleuræ for the most part like the mesonotum; a black spot below the humeri, and the metanotum in part pitchy brown. Abdomen black; each segment on its posterior part with four nearly contiguous silvery white spots. Legs reddish yellow, the femora and tibiae in large part, especially the posterior side of the four anterior femora, pitchy brown or blackish; all the metatarsi light yellow, the distal joints brownish; all the femora thickened, the hind pair much so, and all with rather long, light yellow pile below; tibiae on the inner side distally with black pile; hind tibiae considerably dilated and with four long bristles, each inserted on a conspicuous tubercle; the four posterior femora with spinous bristles on the outer side inferiorly. Wings yellowish hyaline, with numerous small, brown spots, the largest and deepest colored of which are situated, one nearly back of the tip of the auxiliary vein, one on the anterior cross-vein, and the third at the tip of the second vein. Length 11 mm.

Two specimens, Rio de Janeiro, H. H. Smith, Nov. This description does not fully agree with the original by Macquart, nevertheless I have but little doubt of the determination. Macquart says: "Thorax noirâtre, pointillé de blanchâtre; deux bandes jaunâtres, interrompues; flancs à bande testacée," etc., and describes the abdomen as simply "noirâtre." He represents the front in his figure as having long bristles, which it is needless to say do not exist. I feel equally confident that *R. punctipennis* Rondani is the same species.

Rondani also describes another species as *R. similis*, which he thought might be a variety of his *R. punctipennis*, in which opinion I fully agree.

Rhopalomera ciliata, n. sp.

♀. Front black, the sides behind and near the ocelli reddish, covered with golden pollen, variable in different lights. Antennae red, third joint large, broadly black on the upper side; arista black, quite bare. Face black, brown and reddish, in the middle above yellowish. Occiput broadly golden pollinose. Palpi black. Mesonotum brownish red, with a slender median stripe, a pair of broader, lateral ones, and the lateral margins golden pollinose. Abdomen yellowish red, shining; each segment with four spots of silvery pollen variable in different reflections. Legs yellowish red, the femora and tibiae in the middle more or less brown; tarsi, except the middle metatarsi, brown or black; hind tibiae extraordinarily dilated, on the inner posterior margin with five or six long bristles inserted on tubercles; on the outer posterior, produced, thin edge densely black ciliate; tarsi much flattened. Scutellum yellow, reddish above. Wings nearly uniformly yellowish; at the tip in front brownish. Length 12 mm.

One specimen, Chapada, Brazil, H. H. Smith.

?*Rhopalomera flaviceps* Macquart, Dipt. Exot. Suppl. i, 336, pl. xviii. f. 6.—New Grenada.

The position of this species cannot be made out from the brief description given.

Rhopalomyia pleuropunctata Wiedemann, Anal. Entom. 18; Auss. Zw. Ins. ii, 572 (*Ropalomera*).—Brazil.

Ropalomera vittifrons Rondani, Esame, etc., 20.—Brazil.

♂, ♀. Front brown, moderately shining, with irregularities; on the lower projecting margin more yellowish; the narrow orbits and a small stripe in the middle, when seen obliquely, silvery white. Face opaque yellow, with a median brown stripe over

the carina; cheeks below the eyes brown. Clypeus dark brown, shining; palpi brown, the immediate tip yellowish. Posterior orbits silvery white. The width of the cheeks is equal to about two-thirds the vertical diameter of the eyes. Antennae red, third joint oval; arista plumose. Mesonotum dark brown or reddish brown, opaque, with four whitish stripes, the inner ones continued on the sides of the scutellum, the outer ones punctulate in front; between the inner pair of stripes, there is a median, narrower, less conspicuous one. Pleuræ whitish pollinose, and, on the more prominent part, in well-preserved specimens, the ground-color shows through in small, round spots. Tegulae white; halteres light yellow. Abdomen more nearly black, opaque, with four rows of silvery white spots, those of the inner rows smaller; oviduct shining black. Legs pitchy black, the immediate base of the hind tibiae yellow, and in well-preserved specimens silvery white; all the metatarsi, save the extreme tip, light yellow; hind tibiae dilated, with four or five long bristles arising from tubercles. Wings light brownish yellowish, a little darker near the costa. Length 8-10 mm.

Twenty specimens, Chapada, Brazil, H. H. Smith. I have no doubt of the identity of this species. Wiedemann, it is true, in his generic description speaks of a tubercle on the face, but in his specific description calls the face convex, which applies. Rondani's description differs only in minor details. He makes no mention of a facial stripe, and calls the thorax blackish.

Apophorhynchus flavidus, n. sp.

♀. Front opaque yellowish red, the large, acutely pointed, depressed ocellar triangle whitish pollinose; orbits silvery pollinose. Face yellow, shining, the tubercle very

large. Cheeks not one-third the vertical diameter of the eyes. Antennae yellowish red. Palpi light yellow. Thorax dark reddish brown, opaque, the mesonotum with a pair of stripes and the lateral margins yellowish white pollinose. Pleuræ with a similar light colored stripe at about its middle. Abdomen deep reddish brown or black, opaque, with the lateral margins opaque light yellow; ovipositor yellow. Legs wholly light yellow; the four anterior femora only a little thickened; tip of hind

tibiae and the distal joints of all the tarsi brown; hind femora considerably thickened; hind tibiae arcuate, not dilated, with a few short bristles on the outer side; all the femora with spiny bristles on the under side distally. Wings brownish, lighter colored along the costa; first posterior cell elongate. Scutellum yellowish, whitish pollinose. Length 8-9 mm.

Two specimens. Chapada, Brazil, H. H. Smith.

A PSYLLID LEAF-GALL ON CELTIS, PROBABLY PACHYPSYLLA CELTIDIS-PUBESCENS RILEY.

BY C. H. TYLER TOWNSEND, LAS CRUCES, N. M.

On May 14, 1892, I found at Riley's water, at western base of the Organ Mountains, some small leaf-galls on *Celtis occidentalis*. The tree was determined by Mr. Walter H. Evans, who was with me at the time. The galls at that date showed on the upper side of the leaves as small swellings about 3 to 5 mm. in diameter, with a pit in the center, thus appearing like raised circles. On the under side they showed simply as smaller warts covered with fine rather long pubescence. Several galls occurred on the same leaf.

On Nov. 26, 1892, in the north end of the same range, south of San Augustine and part way up from the base of the mountains, there were found numerous fallen leaves of *Celtis* containing fully developed galls of this species. As many as 20 galls occurred on one small leaf. There were occasionally some double galls. The fallen leaves

were green in color, but nearly dry. This gall appears without much doubt to be that of *Pachypsylla celtidis-pubescons* Riley, as it agrees well with the description.

The dried galls on the leaves just mentioned measure 2 to 3 mm. in diameter on the lower globular portion. The upper circular rim-like portion is 3 to 4 mm. in diameter. Only galls from which the occupants had emerged were measured. The exit holes are in the side of the pit-like depression on upper surface of leaf. They are elongate openings, so as to allow the egress of the wide-bodied and flattened pupa. Occasionally a gall has a small circular opening, in one case this being in the globular portion of the gall on the under side of the leaf. These mark the exit of a small hymenopterous parasite.

Some of the above dried galls having no exit hole were opened, and some